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The Market for Lumber and Other Wood Products in Hawaii's Transportation Industry

R. SIDNEY BOONE

ABSTRACT: Hawaii's transportation industry uses about 8 million board feet of lumber a year, chiefly in the form of pallets. Between 6½ and 7½ million board feet of lumber are required to manufacture the 300,000 pallets used each year. Two-thirds of these pallets are expendable. Recent use of robusta eucalyptus in making pallets shows that this locally-grown species has been an acceptable material. In addition to pallets, there is a small but continuing market for produce containers. The market for wood in the transportation of goods could be an important outlet for low-grade hardwoods in Hawaii.

Hawaii's economy depends heavily on transportation. Almost everything sent to or from the islands or within the islands travels by sea. Ships carry goods to and from ports in the islands, the United States mainland, and other countries.

To store and transport goods, shippers rely on pallets, boxes, and crates. Goods not already on pallets while aboard ship or barge are placed on them for easier rehandling during unloading. Vegetables, fruits, and other products are packed in boxes and crates. The manufacture of these wood items requires a considerable volume of lumber--both softwoods and hardwoods.

Information on the volume of wood used in shipping goods can help the State's timber products industry determine the potential market for lumber and other wood products. To provide estimates on use in 1964, we interviewed a representative cross section of major users of wood products in transporting civilian goods in Hawaii.[1]

PALLETS

By far the biggest use--80 percent--of wood products in Hawaii's transportation industry is in the form of pallets. Pallets are probably used more extensively in Hawaii than in any other state because of its dependence on sea transportation.

Pallets first came into general use in the United States in the early 1920's, when mechanical lifts were developed. By the 1950's more than 40 million pallets were being manufactured each year to take care of industrial demands. Pallet production is expected to rise to 51 million units a year by 1975.[2]

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[1]U. S. Forest Service research in Hawaii is conducted in cooperation with Division of Forestry, Hawaii Department of Land and Natural Resources.

[2]Panshin, A. J., Harrar, E. S., Bethel, J. S., and Baker, W. J. Forest products, their sources, production, and utilization. 538 pp. Ed. 2. New York : McGraw-Hill Book Co. 1962.

Expendable pallets go all the way to shipment destinations and are not returned to the shipper. Permanent pallets are used in warehouses and in transporting to the docks shipments not using expendable pallets.

This study showed that among the larger and easily identifiable users the leading purchasers of pallets in Hawaii were as follows:

	Annual purchase	
	Permanent pallets	Expendable pallets
Industry:		
Pineapple canneries	25,000	150,000
Food distributors	25,000	5,000
Cement manufacturers	9,000	11,000
Inter-island shippers	1,000	0

Pineapple canneries--one of the State's most important industries--are by far the largest users of pallets. Their annual purchase of 175,000 pallets represents about 58 percent of the State's annual market of 300,000 pallets.

The second largest users of pallets are the firms that handle the distribution of foodstuffs from the docks to the retail stores. We found that these firms keep on hand 80,000 to 100,000 pallets, mostly of the permanent type. These food distributors normally figure a 3-year write-off on their pallets because of pallets lost or not returned. Loss of pallets was mentioned as a problem by practically all the firms we interviewed. The food distributors, however, were the only firms that gave a time estimate on "write-off."

Representative of other manufacturing industries in the State which use pallets are the cement manufacturers. This industry uses about 15,000 to 20,000 pallets a year; slightly over 50 percent are used only once.

The inter-island shipping industry purchases about a thousand permanent pallets yearly. It often uses specialty or non-standard size pallets in addition to the more standard types.

There are several other isolatable industries, such as air freight, ocean shipping, and agricultural co-ops, which normally purchase less than 500 pallets annually.

PRODUCTION OF PALLETS

Until recently, the pallets used in Hawaii were made entirely of softwood lumber. And most of them were imported as fully assembled units from the Pacific Northwest. A few thousand units were made locally by the larger lumber supply houses using softwood lumber from the Pacific Northwest. Less than 500 pallets a year were constructed of local hardwood.

Within the past year, considerable interest has developed in fabricating pallets locally by using Hawaii-grown timber. In 1965 a pallet producing plant was established on the dock in Honolulu. It used lumber shipped from the Pacific Northwest, mostly Canada.

Since early 1965, an increasing amount of a local hardwood, particularly robusta eucalyptus (Eucalyptus robusta), has entered the picture. The strength properties of this wood are such that for the expendable pallets, the lumber need only be half as thick as in softwood pallets. This, in turn, makes the pallet only two-thirds as heavy. Pallets are now being made entirely of robusta, entirely of softwood, or a combination of the two woods. Standard size permanent or warehouse pallets are being made from robusta lumber. All the major pineapple canneries are now using some locally produced pallets, made either from local hardwood or imported softwood or both. They expect to switch entirely to locally produced lumber as soon as production facilities can meet their needs.

Robusta eucalyptus seems well suited and acceptable as pallet material. The principal inter-island shipper we interviewed indicated his satisfaction with the permanent type and stated that such pallets are more durable than the softwood pallets. Others who have tried the robusta pallets appear to be equally satisfied with them.

MARKET OUTLOOK

The pallet market is a highly competitive one. Local producers must compete with mainland producers. If the present rate charged by shippers to bring assembled softwood pallets from the West Coast is substantially reduced, it is questionable if local producers of pallets could compete under present conditions.

Pallet grade lumber is normally produced as a rather low grade byproduct of higher quality operations. It is worth noting that in areas where both hardwood and softwood lumber is available, as in the eastern United States, pallets are usually made of low grade hardwood lumber. Hardwood operators producing high quality material for furniture stock, interior paneling, flooring, siding, mill and cabinet stock will need a market for their lower grade lumber. As a part of this integrated operation, local pallet production should be able to compete under almost any condition.

VEGETABLE AND FRUIT CONTAINERS

Wooden containers and crates are used in shipping produce from other ports to Honolulu. Shipments to the mainland go mostly in paperboard boxes. More than 100,000 wire-bound boxes, knocked down, are imported to Hawaii annually. Commonly used for vegetables, these wire-bound boxes are returned to the producer "knocked-down" and are normally reused several times.

Open-slatted crates, open-topped wooden boxes, and paperboard boxes are also used in shipping vegetables. Bananas are usually shipped in large wooden boxes which are reused many times. Papayas are shipped between islands in special open-topped wooden boxes and to the mainland in paperboard boxes. When a sizable papaya cooperative was organize in early 1964, it bought 20,000 wooden boxes for inter-island shipment. These are lug-type boxes holding about 25 pounds net and using 3 board feet of lumber. Most boxes were assembled locally from imported lumber.

There is a potential for local woods in the production of produce containers, but it would be considerably less in volume than in pallet production. Investigation into wire-bound box manufacture has indicated tha a manufacturing plant could not be economically started on the indicated market of 100,000 units annually. But there should be a relatively continuing though small market for papaya boxes, lug-type boxes, as well as for banana crates and other vegetable containers. As with pallets, local producers must compete with mainland producers in both product price and quality.

OTHER USES

Hawaii does not have railroads--one of the transportation industry's major wood users in other parts of the United States. There are less than three miles of operable track on Oahu, and a short line on Maui is scheduled to be shut down.

The trucking industry is quite small in Hawaii. Because of its size, only a small volume of wood is used in the construction and maintenance of truck beds--another major wood use on the mainland with its huge trucking industry.

It is unlikely that there will be a significant change in the volume of wood used in this segment of the transportation industry in Hawaii.

Wood used in sea van or container construction and maintenance was not surveyed as a part of this study. Limited inquiry did indicate that most sea vans are made of plywood reinforced with steel. Some assembly of sea vans is done in Hawaii using plywood from the West Coast, but most fabricating is done on the mainland. Entry into this market for Hawaii's hardwoods at present does not seem very promising, because plywood--with its high strength-to-weight ratio--probably will continue to be used.

The Author

R. SIDNEY BOONE joined the Station's research staff in Hawaii in 1964. Headquartered in Honolulu, he is studying the uses, properties, and processing of forest products. A 1959 forestry graduate of Louisiana State University, he earned a master's degree in wood utilization at Duke University (1960).